

Remarks

Claims 5 and 14 are canceled. Claims 1-2, 9, and 11 are amended. After the amendments claims 1-4, 6-13 and 15 are pending and under consideration.

The basis for the changes to claim 1 appears in prior claims 2-4. The basis for the changes to claim 2 appears in the preamble of prior claim 1 and in prior claim 5. Claims 9 and 11 are each amended to independent form including all of the features of the prior independent claim and of any intervening claims.

Claims 9-11 are believed to be in allowable form as per paragraph 8 at page 6 of the Official Action (claim 10 being dependent upon claim 9).

The drawings were objected to under 37 CFR 1.83(a) as the clutch mechanism was claimed but not shown in the drawings. Drawing sheet(s) incorporating such changes as per 37 CFR 1.121(d) was required.

A "New Sheet" of the drawings, Fig. 3, is enclosed in response. Fig. 3 shows a clutch mechanism as described at page 9 lines 26-37 of the description and in Claims 2-5 of the application as originally filed. Fig. 3 is set in the pipe 32 and sleeve 34 (shown in original Fig. 2) and contains only features which are described in the application as originally filed. As such it is believed that it does not contain any new matter.

The reference numbers "60", "62", "64", "66", and "68" have been added in the "New Sheet", Figure 3, as mentioned in the amended paragraph appearing at page 9 lines 26-37 (with such underlying terminology appearing in the original specification and original claim 5).

Applicant has amended the specification at page 9 lines 26-37 and page 6, lines 33-37 for purposes of conforming the description to the "New Sheet" of drawings, Fig. 3, in accord with 37 CFR 1.84(p)(5). The undersigned attorney thanks the examining attorney for the suggestions relating to corrected drawing sheets.

Claim 14 was rejected under Section 102(b). Claim 14 has been canceled.

Claims 1-8, 12 and 13 were rejected under section 103(a) over Chaffaut combined with Webster or EP '318. Please reconsider these rejections in light of the claims as amended and the following remarks.

Claim 1 has been amended by including the features of former Claims 2, 3 and 4, and Claim 2 has been amended by including the first feature of former Claim 5. As amended, both of Claims 1 and 2 include the feature of a clutch mechanism, the clutch mechanism of Claim 1 having a substantially continuous variation in resistance between the minimum resistance and the maximum resistance, the clutch mechanism of Claim 2 having two annular members with corresponding tapered drive surfaces.

As a consequence of these amendments, former Claim 5 has been deleted.

Applicant believes that the clutch mechanism of Chaffaut automatically engages when the centring device is forced against the wall of the borehole as the drill moves along the borehole. That is precisely the set of circumstances for which the present invention has been conceived, namely the invented stabilizer is forced against the wall of the borehole so that it can act as the fulcrum for the applied steering force (see for example page 4 lines 30-38 and page 10 lines 1-9 of the present application).

Claims 1 and 2 of the present application state that the stabilizer is located between the steering component and the drill bit, and as is made clear in the application the stabilizer will act as a fulcrum when a steering force is provided. If the drill bit is to be steered the drill bit must advance whilst the steering force is applied, and these are precisely the circumstances which are required to engage the clutch of Chaffaut. Once the clutch mechanism of Chaffaut is engaged, the blades of his centring device will rotate and ream the borehole (as stated at column 8 lines 21-28), which is the disadvantage which the Applicant refers to at page 5 lines 1-9 of the present application, and which is avoided by the present invention.

Alternatively stated, the centring device of Chaffaut would not be able to distinguish between an obstruction within the borehole and the application of a steering force by the steering component, and the clutch would engage in either situation.

Accordingly, the skilled person seeking to provide a steerable drill bit arrangement as set out in the preamble to Claims 1 and 2 would be directed away from Chaffaut, and therefore directed away from the combination of prior art documents as set forth. Alternatively stated, if the skilled person did make such a combination he or she would be faced with the same problem as that which was facing the present inventors. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. MPEP 2141.02

For the above-stated reasons, the Applicant believes that Claim 1 as previously set out, and therefore also Claims 1 and 2 as amended, are inventive in light of the stated prior art documents. The other similarly rejected claims being dependent thereon are therefore also believed to be allowable.

Claims 1, 2, 5-8, 12 and 13 were rejected under section 103(a) over Webb combined with Webster or EP '318. Please reconsider these rejections in light of the claims as amended and the following remarks.

It is believed that the rejection has been made with the benefit of hindsight which was not available to the present inventors. The first-stated object of the invention of Webb et al (as stated at column 2 lines 13-16) is to "provide a new and improved apparatus for controlling and eliminating well bore deviation from a designed course". A skilled person would not be encouraged to use such an apparatus in a steerable drill bit arrangement. Furthermore, there is no disclosure of using the stabilizer of Webb et al as a fulcrum, and indeed its stated operation is the opposite of that. The combination of the two or more references is "hindsight" in this instance because the "express" motivation to combine the references is lacking. MPEP 2145

Also, whilst Webb utilises a clutch mechanism, this can only be deployed if drilling is suspended and a separate tubular assembly ("washover cutter tool") is

lowered over the drill string in order to push down the sleeve to engage the dog-clutch 40. Stopping the drilling operation to release the stabilizer is a very time-consuming and expensive procedure and would only ever be undertaken if the drill string becomes stuck in the borehole, and in particular stuck by the stabilizer.

Notwithstanding these arguments against the present rejection, however, the Applicant has amended Claims 1 and 2 so as to further distinguish from the disclosure of Webb et al. Specifically, Claims 1 and 2 now include features of the clutch mechanism which enable it to be actuated whilst the drill string is rotating, this being a requirement for a practical steerable drill bit arrangement, but unnecessary for an emergency retrieval situation as envisioned by Webb et al.

Specifically, Webb et al does not show a stabilizer in which the variation in resistance is substantially continuous, and in the dog-clutch arrangement 40 the variation in resistance is a step from "disengaged" to "engaged". Also, Webb et al does not disclose a clutch having two annular members with corresponding tapered drive surfaces. The prior art references must teach or suggest all the claim limitations. MPEP 2142.

To believe that the stabilizer of Webb et al could benefit from a clutch mechanism such as that described in Claims 1 and 2 requires the implementation of hindsight reasoning, and there is no suggestion in Webb et al that their clutch mechanism is in any way deficient for the purposes for which it was designed.

Similarly to believe that Claims 1 and 2 are rendered obvious by a combination of Webb et al, Chaffaut, and either Webster or the European patent '318 again, requires the implementation of hindsight reasoning, and specifically knowing which parts of the centering device of Chaffaut are valuable to the present invention, which parts of the stabilizer of Webb et al are valuable to the present invention, and which parts of the Webster or '318 documents are valuable to the present invention. The Applicant believes that such hindsight reasoning is inappropriate for lack of an express motivation to combine the reference teachings.

Accordingly, it is believed that Claims 1 and 2 as amended are inventive in light of the stated prior art documents. The other similarly rejected claims being dependent thereon are therefore also believed to be allowable.

Please reconsider and reexamine the application, and telephone the undersigned attorney if it could help to expedite the resolution of this application.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'Mark A. Oathout', written over a horizontal line.

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